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10/521,473

01/18/2005

Graham Williams

55025-52337

5835

7590

10/31/2005

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EXAMINER

WEST, PAUL M

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H/A

Office Action Summary

Application No.

10/521,473

Applicant(s)

WILLIAMS ET AL.

Examiner

Paul M. West

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>01182005</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 14. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10, 11, 12, and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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4. As to claims 10, 12, and 14, "Inconel" and "Kovar" are a registered trademarks and render the claims indefinite because their chemical compositions are capable of changing over time.

Claim Rejections - 35 USC § 103

5. Claims 1, 2, 5-8, 15, 18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franz et al. in view of Whitney.

6. As to claims 1 and 2, Franz et al. teach an apparatus for monitoring the level of a liquid in a vessel, the apparatus comprising: a metallic probe 2,30 hermetically sealed within the vessel 1 by means of a sealing ring 36 at a sealing end of the probe, the probe 2,30 constituting a first electrode; a second electrode 1 spaced apart from the first electrode 2 in a manner such that the first and second electrode together form part of a capacitor (Col. 1, lines 66-68); means 4 for supplying an electrical current from an applied electrical current source to the capacitor; and means 3 for monitoring capacitance of the capacitor. Franz et al. do not teach the sealing end of the probe 2 being encased within a glass material. Whitney teaches a similar capacitive liquid level measuring apparatus comprising a metal probe 24 which is encased in a glass layer 34. It would have been obvious to one of ordinary skill in the art to combine the teachings of Whitney with the apparatus of Franz and encase Franz's probe in glass because a glass layer would protect and insulate the probe and would not deteriorate as easily as other plastic insulators.

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7. As to claim 5, Franz et al. teach a portion of the probe 30 being hermetically sealed to a port 33 at the top of the vessel by means of a sealing ring 36.
8. As to claim 6 the probe 30 is sealed within a mounting 32 that is inserted into the port 33 of the vessel.
9. As to claim 7, the mounting 32 comprises electrical connections 60,61 for the probe.
10. As to claim 8, the probe comprises a coating of 50 or an elastomeric material (polytetrafluoroethylene) over a portion of the probe.
11. As to claim 15, Franz et al. teach a monitoring means 3 for measuring a change in capacitance.
12. As to claim 22, Franz et al. teach a method for monitoring the level of a liquid in a vessel, the method comprising the steps of: inserting a metallic probe 2,30 into a vessel 1 in a manner such that the probe acts as a first electrode; hermetically sealing one end of the probe within the vessel by means of sealing ring 36; providing a second electrode 1 in a manner such that the first and second electrodes form a capacitor (Col. 1, lines 66-68); applying an electric current to the capacitor by means of current supply 4; and monitoring capacitance of the capacitor by means of measuring circuit 3. Franz et al. do not teach either end of the probe being encased in a glass material. Whitney teaches a similar capacitive liquid level measuring method comprising providing a metal probe 24 which is encased in a glass layer 34. It would have been obvious to one of ordinary skill in the art to combine the teachings of Whitney with the method of Franz

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and encase Franz's probe in glass because a glass layer would protect and insulate the probe and would not deteriorate as easily as other plastic insulators.

13. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franz et al. in view of Whitney and further in view of Hansen, III et al.

14. As to claim 3, the combination of Franz et al. and Whitney does not teach the probe being made out of stainless steel. Hansen teaches a capacitive liquid level sensing probe 23,27 made out of stainless steel (Col. 4, lines 45-47). It would have been obvious to one of ordinary skill in the art to use stainless steel as taught by Hansen with the combination of Franz and Whitney because it is well-known that stainless steel is a relatively inexpensive metal that is widely used in situations where corrosion resistance is a consideration.

15. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Franz et al. in view of Whitney and further in view of Zorich et al.

16. As to claim 4, the combination of Franz et al. and Whitney teaches does not teach the glass material specifically being a borosilicate glass material. Zorich et al. teach an apparatus which is frequently in contact with different types of liquids and vapors being made of a borosilicate glass or glass-lined steel (Col. 6, lines 57-59). It would have been obvious to use borosilicate glass as taught by Zorich with the combination of Franz and Whitney because borosilicate glass is well-known and widely

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used for its superior durability, chemical resistance, and low coefficient of thermal expansion.

17. Claims 9, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franz et al. in view of Whitney and further in view of Nishimura et al.

18. As to claims 9, 11, and 13, the combination of Franz et al. and Whitney does not specifically teach any part of the apparatus being made of nickel alloy. Nishimura et al. teach using nickel alloy in a member 15 bonded to a glass plate 4. It would have been obvious to use nickel alloy in the apparatus of the combination of Franz and Whitney because Nickel is well-known to be an inert metal and as Nishimura states, it has a thermal expansion coefficient similar to that of glass (Col. 5, lines 62-65). It would have been further obvious to use titanium or aluminum in the alloy because it is well-known that these metals are useful in manufacturing processes for their high strength-to-weight ratio.

19. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franz et al. in view of Whitney and further in view of Tward.

20. As to claims 16 and 17, the combination of Franz et al. and Whitney does not teach the apparatus comprising a recorder for recording a change in capacitance or a display for displaying the liquid level in the vessel. Tward teaches a capacitive fluid level sensing apparatus 10 that comprises a recorder for recording changes in capacitance and a display for displaying measurements of the level of liquid in a vessel

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11 (Col. 5, lines 7-14). It would have been obvious to one of ordinary skill in the art to use a recorder and display as taught by Tward with the combination of Franz and Whitney because a recorder allows measurements to be stored for later examination and a display is a common and well-known way to easily read the measurements values outputted from a measuring apparatus.

21. Claims 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Franz et al. in view of Whitney and further in view of Howard et al.

22. As to claims 19 and 20, the combination of Franz et al. and Whitney does not specifically teach the apparatus being configured and adapted to monitor a level of organometallic compounds, nor does it teach the apparatus being a bubbler. Howard et al. teach a bubbler 10 which is configured and adapted to hold organometallic compounds (Col. 3, lines 6-18). It would have been obvious to one of ordinary skill in the art to combine the level sensing apparatus taught by the combination of Franz and Whitney with the bubbler taught by Howard, because this would allow the liquid level sensor to be used with hazardous or high-purity chemicals that would not be able to be stored in standard metal containers, and would allow the level of these liquids to be known without accessing the interior of the container.

23. As to claim 21, the combination of Franz et al. and Whitney teaches all of the limitations as set forth above, but does not teach a bubbler comprising a sealed metallic container having an inlet pipe, an outlet pipe and a dip tube. Howard et al. teach a bubbler 10 comprising a sealed metallic container (Col. 3, lines 6-7), an inlet pipe and

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dip tube 20, and outlet pipe 24. It would have been obvious to one of ordinary skill in the art to combine the level sensing apparatus taught by the combination of Franz and Whitney with the bubbler taught by Howard, because this would allow the liquid level sensor to be used with hazardous or high-purity chemicals that would not be able to be stored in standard metal containers, and would allow the level of these liquids to be known without accessing the interior of the container.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul M. West whose telephone number is (571) 272-8590. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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